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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,480	10/07/2004	Masatoshi Iio	50340-174	7440

7590 03/02/2007

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EXAMINER	
BASICHAS, ALFRED	
ART UNIT	PAPER NUMBER
3749	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

ED

Office Action Summary	Application No.	Applicant(s)	
	10/510,480	IIO, MASATOSHI	
	Examiner	Art Unit	
	Alfred Basichas	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *7-9 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *7-9 and 11* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species II in the reply filed on December 12, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawasumi (EP1198020), which shows all of the claimed limitations.

1. A warm up device for a catalytic reactor for use with a fuel cell power plant which comprises a plurality of catalytic reactors 13,15 each of which contains a catalyst 51,52, and a gas passage 42 for connecting the catalytic reactors in series (see at least fig. 1), the warm up device comprising: a burner 11 for producing combustion gas by burning fuel 19 in order to warm the catalysts upon start up (i.e. "start-up combustor") of the fuel cell power plant; and combustion gas supply passages for distributing the combustion gas individually to the catalytic reactors (see at least fig. 1).

3. The warm up device as defined in claim 1, wherein an activation temperature of a catalyst contained in a catalytic reactor is different from an activation temperature of a catalyst contained in a different catalytic reactor (inherent as the temperature will gradually reduce due to heat loss).

4. The warm up device as defined in claim 1, wherein the warm up device

further comprises a heat amount supply adjustment mechanism 90 for reducing differences among the reactors in relation to a timing at which the catalyst reaches an activation temperature.

5. The warm up device as defined in claim 4, wherein the heat amount supply adjustment mechanism comprises a valve which is capable of supplying air 31,32,33 to one of the combustion gas supply passages (see at least paragraph 0048).

6. The warm up device as defined in claim 5, wherein the warm up device further comprises a sensor 70,71,72 for detecting a catalyst temperature of a specific catalytic converter which is connected to the one of the combustion gas supply passages and a controller functioning to: calculate from the catalyst temperature detected prior to combustion gas distribution an amount of heat required to warm the catalyst to activation temperature, compare the heat amount with a preset design warm up heat amount, and control the valve such that air is supplied to the specific catalytic converter when the heat amount is smaller than the design warm up heat amount.

10. The warm up device as defined in claim 1, wherein the catalytic reactors comprise a reformer 13 for reforming fuel to produce reformate gas containing hydrogen and carbon monoxide, a shift converter for reducing by shift conversion the carbon monoxide concentration in the reformats gas which flows therein from the reformer through the gas passage, and a preferential oxidation reactor for reducing by a preferential oxidation reaction the carbon monoxide concentration in the reformate gas which flows therein from the shift converter through the gas passage, and the combustion gas supply passages comprise a combustion gas passage for distributing combustion gas to the reformer and a combustion gas passage for distributing combustion gas to the preferential oxidation reactor.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

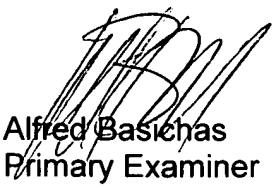
7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi (EP1198020) in view of Aoyama (US2005/0089732). Kawasumi discloses substantially all of the claimed limitations, including varied air-fuel ratios. Nevertheless, Kawasumi does not specifically recite lean ratios. Aoyama teaches fuel reforming system for a fuel cell system wherein a lean air-fuel ratio is preferred in order to avoid high combustion temperatures associated with stoichiometric air-fuel ratios.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alfred Basichas whose telephone number is 571 272 4871. The examiner can normally be reached on Monday through Friday during regular business hours.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center telephone number is 571 272 3700.

February 26, 2007



Alfred Basichas
Primary Examiner